Hortense Bridge (Chalk Creek Bridge)
Spanning Chalk Creek on State Highway 162
Nathrop vicinity
Chaffee County
Colorado

HAER No. CO-49

HAER
COLO,
8-NATH.V,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
P. O. Box 37127
Washington, D. C. 20013-7127

HAER
COLO,
8-NATH.V
1-

HISTORIC AMERICAN ENGINEERING RECORD

Hortense Bridge (Chalk Creek Bridge)

HAER No. CO-49

Location:	Spanning Chalk Creek on State Highway 162, 4.3 miles west of Nathrop, Chaffee County, Colorado UTM: 13.399270.4287650 Quad: Poncha Springs
Date of Construction:	1880
Builder:	Denver, South Park & Pacific Railroad
Present Owner:	Colorado Department of Highways 4201 East Arkansas Avenue Denver, Colorado 80222
Original Use:	Railroad bridge
Present Use:	Vehicular bridge, to be replaced by a new vehicular bridge. Old bridge is scheduled to be moved to a new location farther down the creek. Projected date of removal is Spring 1987.
Significance:	The Hortense Bridge is technologically significant as a rare existing example of a very common early bridge, a timber/iron Queenpost truss. It is historically significant as an early span associated with an important Colorado railroad.
Historian:	Sarah J. Pearce Staff Historian Colorado Department of Highways November 1986
Edited, Retyped and Transmitted by:	Jean P. Yearby, HAER, 1988

The Hortense Bridge

The Hortense Bridge over Chalk Creek was built by the Denver, South Park & Pacific Railroad during the summer of 1880. Track crews for the Denver, South Park & Pacific Railroad began laying the line from its connection wit the Denver & Rio Grande at Nathrop in early 1880. By July, the end of the tracks had reached Hortense Hot Springs (also called Mount Princeton Hot Springs) and, by December, the line had been completed to the St. Elmo mining district. At Hortense, the railroad erected a two-span combination truss over Chalk Creek, totaling 82 feet in length. As the mines in the district began to play out, segments of the line were abandoned, this one in 1926, and the grade was converted to vehicular use. Physical evidence suggests that this braced Queenpost truss, comprised to timbers and iron components fabricated by the New Jersey Iron Works, is one span of the original 1880 Hortense Bridge, functioning in place. Now on a minor state highway, it remains in fair condition.

The Hortense Bridge features standard span-length and configuration for that narrow gauge railroad; it is identical to the Estabrook Bridge in Park County, another early Denver, South Park & Pacific span. It is the oldest timber/iron bridge found in the Colorado Bridge Survey and shares the distinction as the oldest bridge superstructure with the Ute Trail Bridge, another converted railroad structure in Chaffee County. It was originally a two-span combination truss, totaling 82 feet in length. Today, only one span remains in place. It is 40 feet in length, with the original center pier converted into an abutment. The bridge is a pin/rigid-connected timber/iron Queenpost pony truss with abutments and diagonal bracing. As a rare example of a once common early truss type, and as a very early span associated with the Denver, South Park & Pacific Railroad, the Hortense Bridge is both technologically and historically significant.[1]

Architectural Information

Span number:	1	end/top chord:	timber w/metal cover
Span length:	39'0"	bottom chord:	2 rectangular eyebars
Overall length:	40'0"	vert./diag. :	2 round eyebars (vert.); 1 round eyebar (diag.)
Roadway width:	20'6"	flr./decking:	timber deck and stringers w/paired metal floor beams
		substructure:	stone ashlar abutments

History of the Denver, South Park & Pacific Railroad

The history of the Denver, South Park & Pacific Railroad dates back to the late 1860s and should include a brief summary of railroad history in Colorado. When gold was discovered in the Colorado Rockies in 1858, it was not long before the need for a rail connection with the East was being discussed.

During the early 1860s, efforts to link the two coasts with a transcontinental rail line were proceeding at great speed. Congress awarded the Union Pacific Railroad the right to build the eastern segment of the transcontinental line in 1862.[2] The route bypassed Colorado, because earlier surveys failed to locate a suitable path across the Continental Divide, choosing instead a route through Wyoming. At the same time, the Union Pacific Eastern Division, later known as the Kansas Pacific, was building slowly westward from Kansas City, with the intent on crossing in a southwesterly direction into the Arkansas Valley. Both lines, however, recognized the need to build branches into Colorado's mining districts.

In the mid-1860s, a struggle over the location of the terminus in Colorado developed between Golden and Denver, and between W. A. H. Loveland and Governor John Evans. In 1866, Loveland formed the Colorado Central Railroad with the assistance of Henry Teller of Central City. Their intention was to build north from Golden, Colorado, to Cheyenne, Wyoming, in order to connect with the mainline. Governor Evans, supported by noted Coloradans Jerome Chaffee and David Moffat, and with assistance from the Union Pacific, organized the Denver Pacific Railroad in 1867, believing they had secured the right to connect with the main transcontinental line. In January 1868, ground was broken for the construction of the Colorado Central Railroad in Golden, followed by groundbreaking ceremonies in Denver on May 20, 1868, for the Denver Pacific.[3]

Funding problems delayed construction on both lines, but the Union Pacific and Kansas Pacific, eager to tap into the mining districts, provided assistance that allowed the Denver Pacific to complete a line from Denver to Cheyenne, and the Kansas Pacific to finally reach Denver from the east. The first train on the Kansas Pacific line arrived in Denver in August 1870.[4] The Colorado Central, unable to build as far as Cheyenne on its own, completed its Union Pacific connection from Golden to a point just north of Denver a month later. Thus, by the end of 1870, Colorado had two connections with eastern marks and one with the west. Attention would now be focused on building to the mining district.

Three men, operating three different railroad organizations, led the rus to develop a right-of-way across the Continental Divide: W. A. H. Loveland and the Colorado Central, William J. Palmer and the Denver & Rio Grande (organized in 1870 in order to build a line south to Mexico City, with branches off the main line to the Pacific Coast), and John Evans and the Denver, South Park & Pacific Railroad.[5] Spurred on by the gold rush, these men conducted surveys as early as 1868 to determine the easiest and best path through the mountains to the gold fields.

Former Governor John Evans organized the Denver, Georgetown & Utah Railroad in 1871, with the intention of extending the Kansas Pacific line west to Salt Lake

City. When lack of financial backing and W. A. H. Loveland's plans for a right-of-way across the Continental Divided blocked Evans' plans, he chose, in 1872, to reorganize his company as the Denver, South Park & Pacific Railroad and head south toward Santa Fe.[6] However, the discovery of gold and silver in the Leadville and Gunnison areas preempted the ultimate destination of the Denver, South Park & Pacific Railroad.

The route chosen by Evans traveled up the South Platte Canyon, over Kenosha Pass, into South Park, then over Trout Creek Pass, and dropping into the Arkansas River Valley. It was considered more advantageous than a route that William Palmer's Denver & Rio Grands was building up the Arkansas Valley from Pueblo, because it was shorter and more direct between Denver and the Leadville area. Although Evans had difficult in acquiring funding, construction on the Denver, South Park & Pacific line began in August 1873.[7]

Given the terrain over which the line was to be built, Evans chose narrow gauge which called for 3-foot track instead of the standard 4 feet, 8-1/2 inches. He contracted with the Denver Railway Association to build the track, sidings, depots, and other structures to the Arkansas Valley. As sections were completed, they would be turned over to the Denver, South Park & Pacific Railroad. By June 1874, the line had reached the town of Morrison, but went no further because of the Panic of 1873 and the subsequent loss of investors.[8] Business on this segment of the line remained brisk, hauling passengers, stone and lumber between Denver and Morrison.

In late 1876, construction began again on the Denver, South Park & Pacific line. The Dsnver & San Juan Construction Company replaced the Denver Railway Association in the job of building the line from Morrison west. Freight was carried on the line as far as it went and helped pay for continued construction. The tracks reached the mouth of South Platte Canyon before the Denver & San Juan Construction Company was replaced in 1877 by the Denver & South Park Railroad Construction and Land Company. Bailey was reached in late 1878, the sumit of Kenosha Pass in May 1879, Weston and Trout Creek Pass in October 1879, and Buena Vista in early 1880.[9]

Up until 1878, Leadville was not a major destination point for the Denver, South Park & Pacific Railroad. But, with the discovery of silver and the subsequent boom, Leadville became a desirable terminus for a railroad line. So, the Denver, South Park & Pacific lins began to consider a possible route to the Lsadville area.

About this time, Jay Gould was in the processing of acquiring control of numerous Colorado railroads. By 1879, he had complete control of the Union Pacific, owned half interest in the Denver & Rio Grande, and was trying to obtain interests in the Denver, South Park & Pacific.[10] This goal was finally achieved in part when he acquired the Kansas Pacific Railroad, which

had loaned funds to the Denver & San Juan Construction Company to build the Denver, South Park & Pacific. With part interests in both the Denver & Rio Grande and the Denver, South Park & Pacific, Gould was prepared to enter the Leadville market.

William J. Palmer's Denver & Rio Grande line was rapidly moving up the Arkansas River from Pueblo and reached Leadville in July 1880. Gould arranged a joint operating agreement between the Denver & Rio Grande and the Denver, South Park & Pacific, giving the Denver, South Park & Pacific operating rights on the Denver & Rio Grande's line between Buena Vista and Leadville in exchange for giving the Denver & Rio Grande the right to operate on the Denver, South Park & Pacific line to Gunnison.[11] The two railroad lines also shared a depot in Buena Vista.

However, this agreement was not in the best interest of the Denver, South Park & Pacific, as it prevented them from building their own line to Leadville, but did not prohibit the Denver & Rio Grande from building a competing line to Gunnison.[12]

In 1880, the Denver, South Park & Pacific Railroad, influenced by Jay Gould, began construction on the line from Buena Vista to Gunnison. Interest in the Gunnison area first developed during the early 1870s when word came that large beds of coal had been discovered. In the late 1870s, large silver strikes were made in Gunnison County and along Chalk Creek and, by 1880, the push was on to reach this new mining area.

Major Evans, the chief engineer for the company, and P. F. Barr, the assistant engineer, conducted a survey in 1879 to locate a suitable route from Buena Vista to Gunnison. They found only two possible routes: one over Poncha Passto Marshall Pass and down the Tomichi River to Gunnison, and the other up Chalk Creek, over Alpine (Altman) Pass, down Quartz Creek and the Tomichi River to Gunnison. They determined that the grade over Marshall Pass was too severe on the down side. Thus, the Alpine Pass route became the more desirable route, despite the rugged terrain, because it was shorter.[13]

The route called for the construction of a tunnel through Alpine Pass at an elevation of 11,612 feet. As soon as the decision was made to use the Chalk Creek route, crews began working on the tunnel. Thus, by January 1880, even before the tracks had reached Trout Creek Pass and Buena Vista, the tunnel under Alpine Pass was under construction.

Work on the Denver, South Park & Pacific's route between Buena Vista and Gunnison began in February 1880. The crews completed 7-1/2 miles of track between Buena Vista and the town of Nathrop, a segment which would be owned by the Denver & Rio Grande under Gould's agreement, but on which the Denver, South Park & Pacific would have trackage rights. The Denver & Rio Grande had

not yet reached this point, so the Denver, South Park & Pacific was forced to build the track from Buena Vista to the diversion point at Nathrop before heading west on their own track toward Gunnison.[14] From Nathrop, construction on the Denver, South Park & Pacific line turned west up Chalk Creek.

The tracks reached Hortense in July 1880. The bridge at Hortense was built at this time to cross Chalk Creek before arriving at the depot. Hortense, also known as Mount Princeton Hot Springs, was originally called Chalk Creek Hot Springs. It was a popular spot for the Ute Indians, who would come to soak in the hot springs (the Mount Princeton Hot Springs are said to be the hottest in Colorado). Located at milepost 142.09 on the Denver, South Park & Pacific line, and at an altitude of 8,190, the railroad's property at Hortense consisted of station #1068, a two-story frame section house, telegraph office, 47,500 gallon water tank, and a wye.[15]

Until tracks were completed farther up the creek, passengers left the train at Hortense and continued their travel west up the creek to the other mining camps by way of the J. L. Sanderson and Company stage. Construction continued throughout the summer of 1880, as tracks continued to inch up Chalk Creek toward the Alpine tunnel. In September 1880, the line reached the town of Alpine and, in December, tracks were laid as far as St. Elmo. By November 1880, five trains stopped at Hortense every day, three by the Denver, South Park & Pacific, and two by the Denver & Rio Grande.[16]

In November 1880, Jay Gould completed his quest for total control of the Denver, South Park & Pacific. The line continued under the same name, but became the Union Pacific's South Park Division.

It had been Evans' decision to use the Alpine Pass route and, thus, build the Alpine tunnel before Jay Gould could acquire an interest in the railroad. William J. Palmer decided to use the Marshall Pass route for the Denver & Rio Grande's line to Gunnison, and ended up proving that this route was not as steep as Evans' survey had indicated.[17] Had Gould not already owned the Denver & Rio Grande, he may have been upset that the tunnel took 18 months to complete, thus allowing the Denver & Rio Grande to arrive in Gunnison in August 1881, a full year before the Denver, South Park & Pacific was able to get there.

No matter how long it took to build the tunnel, it was still an engineering marvel. At an altitude of 11,612 feet, the tunnel carried the highest railroad tracks in the United States at the time of its completion, and was nearly 1,800 feet in length.[18] The descent from the tunnel was difficult, due to the sheer cliffs.. The company was forced to build large rock walls along the cliffs to carry the tracks on the downhill path toward Gunnison. The Denver, South Park & Pacific finally arrived in Gunnison in September 1882.

The next few years were relatively quiet for the Denver, South Park & Pacific, with only minor expansion. The line continued north of Gunnison, following Ohio Creek to the mining camp of Baldwin, but never extended west of this point, despite its original intention to continue westward. In 1884, the Denver & Rio Grande ended the joint operating agreement on the Leadville line. In another attempt to expand toward the lucrative mining market, the Union Pacific built a branch of the Denver, South Park & Pacific from Como over Boreas Pass to Breckenridge and Dillon, then over Fremont Pass to Climax and Leadville.

By the mid-1880s, it became clear that Colorado's population had not kept pace with the rapid rail expansion. Lines were built into areas with sparse populations, too few to adequately support the line, as mining began to die out. Construction slowed considerably in the next several years. As a result, numerous railroad companies defaulted during the period and a reorganization of several rail companies occurred.[19] The Denver, South Park & Pacific was not exception. In August 1889, the Denver, Leadville & Gunnison Railway, incorporated by Union Pacific interests, took control of the Denver, South Park & Pacific.

In 1890, a merger within the Colorado rail system put the Union Pacific and its subsidiaries together with the Denver, Texas & Gulf Railroad, forming the Union Pacific, Denver & Gulf Railway. The Denver, Leadville & Gunnison Railway retained its integrity under separate receivership and was no longer a subsidiary of the Union Pacific.[20]

The decline of the mining industry in the 1890s was certainly unfavorable to the railroads and, in 1893, following the Silver Crash, the Denver, Leadville& Gunnison (the former Denver, South Park & Pacific Railroad) went into receivership. In 1898, the Denver, Leadville & Gunnison and the Union Pacific, Denver & Gulf Railroad were reorganized as the Colorado & Southern Railroad Company. Finally, in 1908, interests of the Great Northern & North Pacific Railroad Company purchased equal control of the Colorado & Southern and its subsidiaries, although the line continued to operate as the Colorado and Southern.

In 1910, with the rail industry already in trouble, the Alpine tunnel caved in for a second time (the first time came in 1888, resulting in the closure of the line from St. Elmo to Pitkin for a period of seven years). This time, the collapse forced the abandonment of the line between Hancock and Quartz. The rails over this portion of the route were removed in 1923. The Buena Vista to Romley line continued until 1926, when the slow abandonment of the entire line began and tracks were removed from this section.[21] By 1939, the entire line had been removed,.with the exception of an isolated, though profitable piece of track between Leadville and Climax. Thus marked the end of the historic Denver, South Park & Pacific Railroad Company.

FOOTNOTES

1 Fraser, Clayton, Rebecca Herbst and Vicki Rottman, Historic Bridges of Colorado, p. 58

2 Hafen, Leroy, ed., Colorado and Its People, Vol. II, p. 637.

3 Ibid., p. 642.

4 Ubbelohde, Carl, Maxine Benson and Duane Smith, A Colorado History, p. 119.

5 Poor, M. C., Denver, South Park and Pacific, p. 72.

6 Ubbelohde, et. al., p. 120.

7 Poor, p. 193.

8 Chappell, Gordon, Robert Richardson and Cornelius Hauck, eds., "The South Line: A Concise History," Colorado Rail Annual #12, p. 50.

9 Poor, p. 193.

10 Ibid., p. 201.

11 Ibid., p. 213.

12 Ibid., p. 215.

13 Chappell, et al., p. 63.

14 Poor, p. 230.

15 Hauck, Cornelius and Robert Richardson, eds. "Ghost Rails in the Rockies," Colorado Rail Annual #4, p. 10.

16 Poor, p. 239.

17 Ibid., p. 250.

18 Ibid., p. 250.

19 Hafen, p. 665.

20 Ibid., p. 672.

21 Ubbelohde, et al., p. 293.

BIBLIOGRAPHY

Athearn, Robert G. Rebel of the Rockies. New Haven: Yale University Press. 1962.

Borneman, Walter R. "Marshall Pass: From Toothache to Railroad." Colorado Country Life XXII. May 1975.

Brayer, Herbert O. "History of Colorado Railroads," in Hafen, LeRoy ed., Colorado and Its People. Vol. III. New York: Lewis Historical Publishing Company, Inc. 1948.

Chappell, Gordon, Robert Richardson and Cornelius Hauck. "The South Park Line: A Concise History."" Colorado Rail Annual. No. 12. Golden: Colorado Railroad Museum. 1974.

Denver & Rio Grande Western Railroad Company. Crested Butte, Gunnison County, Colorado: The Great Coal, Coke, and Ore Center of the Gunnison Country. Chicago: JMW Jones Stationery & Printing Company. 1881.

Fraser, Clayton, Rebecca Herbst and Vicki Rottman. Historic Bridges of Colorado. Denver: Colorado Department of Highways. 1986.

Hauck, Cornelius and Robert Richardson, eds. "Ghost Rails in the Rockies." Colorado Rail Annual No. 4. Golden: Colorado Railroad Museum. 1966.

Henderson, Charles W. Mining in Colorado. Washington: Government Printing Office, 1926.

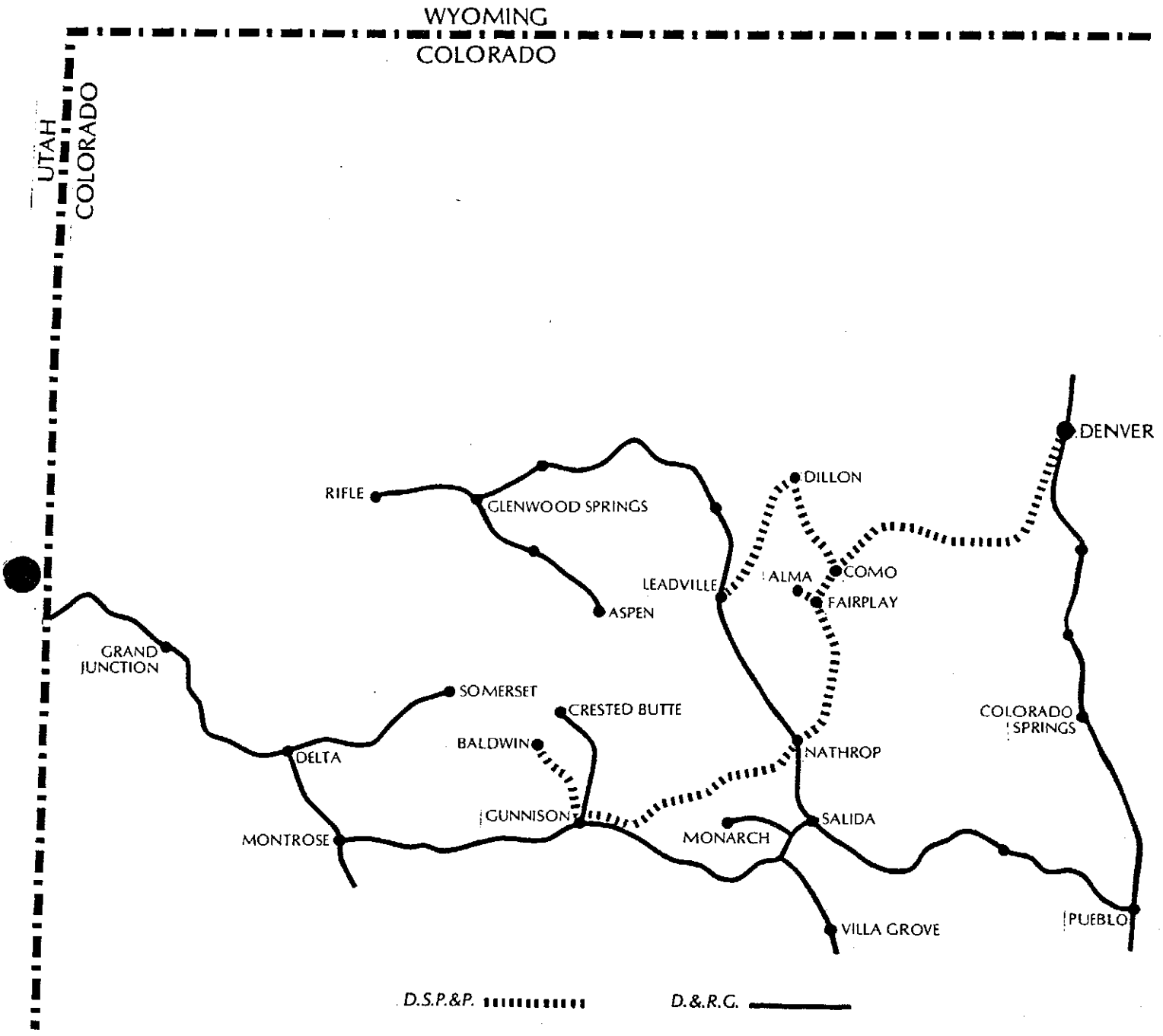
Ormes, Robert M. Railroads and the Rockies. Denver: Sage Books. 1963.

Poor, M. C. Denver, South Park & Pacific. Denver: Rocky Mountain Railroad Club. 1949.

Sanford, Albert B. "The Old South Park Railroad." Colorado Magazine. Vol. V. October 1928.

Storey, Brit A. "William Jackson Palmer: Promoter." A Colorado History. Boulder: Pruett Publishing Company. 1976.

Wallace, Elizabeth V. Gunnison Country. Denver: Sage Books. 1960.



DENVER, SOUTH PARK & PACIFIC RAILROAD ROUTE

(also showing existing D.&.R.G. routes)

NORTH